

# Water Drops

Science Fun for Kids in the Water Environment

Winter 1997

## Fresh Water Streams

### HEALTHY STREAMS

Many different plants and animals depend on freshwater to survive. The food web is the relationship between the fish, insects, ducks, turtles, mosses, trees, grass and other living things. The relationships between all living things and their environment is known as the ecosystem. Everything in an ecosystem is linked together, with the food web being the most important part. Like the human body, the ecosystem has many parts that do different jobs in order for the plants and animals to survive.

Many plants, animals and bugs inhabit a stream. Some fish, like salmon, depend on the freshwater stream to lay their eggs. Sediments can be helpful and harmful to a stream. It helps plants grow but too much can kill everything in the stream.

by Courtney Tardd

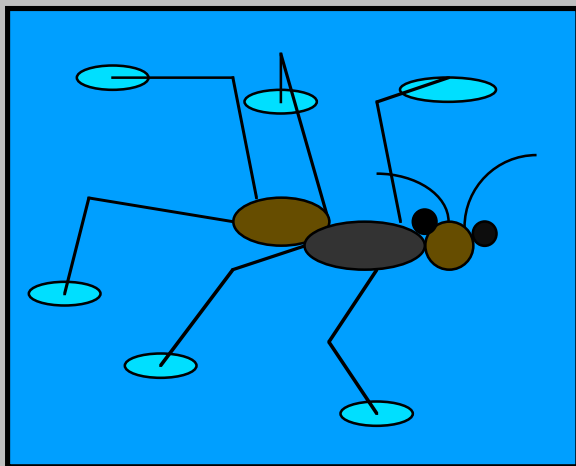
### PHYSICAL CHARACTERISTICS

Some of the basic non-living parts of a stream are temperature, the dirt in the stream (called sediment), the acidity, and the nutrients in the stream. Temperature is a measure of how warm or cold the stream is. The sediment that the stream actually carries is called the load. Acidity is the amount of acid in the water. Acids are chemicals like lemon juice and stomach acid. The most important chemical nutrients for life in a stream are oxygen, nitrogen, and phosphorous. Oxygen is what humans breathe, nitrogen is the main ingredient in air, and phosphorous is necessary for life.

But each stream is different, these parts are special for each stream. If the temperature, sediment, and acid levels change too much, the natural plants and animals die. This can lead to terrible changes in the ecosystem.

by Bruce Kessler

### WATER STRIDERS



Water strider on the water.

Water striders are insects that glide on the water's surface. Their legs stay on top of the water through surface tension. Air is trapped on hairs at the ends of the legs of the water striders, keeping their legs from falling into the water. If you look at one floating on the water, it looks like the ends of its legs are resting on little floating pads. These are actually small dents in the surface of the water made by the weight of the insect pushing down. Water bugs help the ecosystem. Some eat algae, which helps keep the amount of algae from becoming too high. They also provide food for other creatures .

by Andrew McCreight

## MISSING LETTERS PROBLEM

1. A chart that shows the food chain \_ O \_ D \_ B
2. A word that describes plants and animals that live in water \_ \_ A \_ \_ C
3. Chemicals that living things need to survive \_ U \_ \_ E \_ \_ \_
4. Measure of how hot or cold something is \_ \_ P \_ \_ \_ \_ E
5. Polluted precipitation \_ C \_ \_ \_ N
6. Amount of sediment in water \_ O \_ \_
7. Pollution from a pipe \_ \_ \_ N \_ \_ \_ \_ C \_
8. The balance and relationships among living and nonliving parts of an environment \_ \_ \_ Y \_ \_ \_ \_
9. Pollution that is not from one source \_ O \_ \_ I \_ \_ \_ U \_ \_ E
10. Creatures that have scales and gills and live in water \_ \_ \_ H

Directions: Fill in the missing letters, the circled letters will spell out a message.

by Bruce Kessler

### Missing Letters Answers

1. Food Web 2. Aquatic 3. Nutrients 4. Temperature 5. Acid Rain 6. Point Source 7. Point Source 8. Ecosystem 9. Non-Point Source 10. Fish

## CROSSWORD PUZZLE

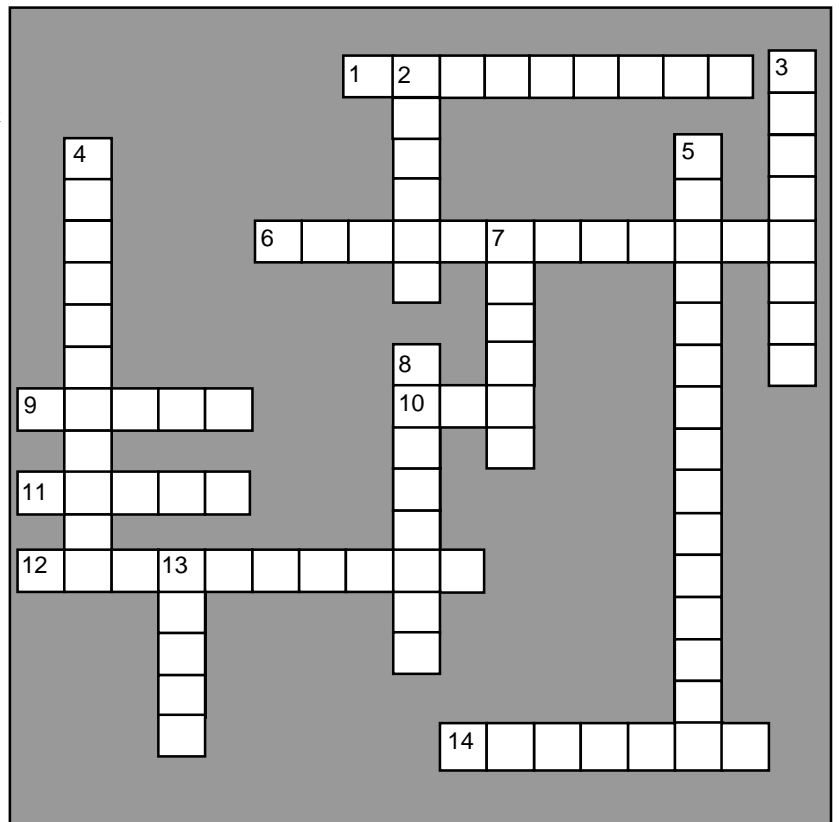
by Andrew McCreight

### ACROSS

1. Word that describes a bad thing people can put in the environment
6. Water bug that walks on water (two words)
10. Comes from the sun and plants need it
10. Government agency that helps regulate pollution
11. Liquid needed by all living things
12. Chemicals used to kill insects
14. A spidery way of showing how different plants and animals are related (two words)

### DOWN

2. Gas produced by plants and needed by most animals
3. Kind of rain harmful to plants and animals (two words)
4. To poison by adding something
5. Pollution produced by factories (two words)
7. A small, flowing body of water
8. Dirt carried in water
13. Word used to describe a poison



### Crossword Puzzle Answers

1. pollutant 2. oxygen 3. acid rain 4. contamination 5. pesticide 6. water strider 7. stream 8. sediment 9. light 10. EPA 11. water 12. insecticide 13. toxic 14. food web

# POLLUTION

## UNHEALTHY STREAMS

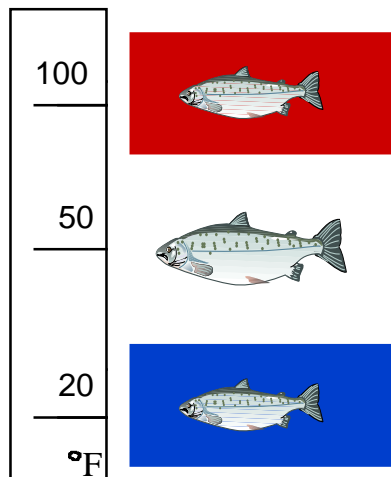
Have you ever walked next to a stream and seen trash floating in the water? This is one type of pollution. Pollution is all manmade substances that harm our natural environment .

The two categories of pollution are point source and nonpoint source pollution. Point source pollution comes from pipes, factory smokestacks, and sewage drains. Nonpoint source pollution does not come from a specific pipe, like pesticides. Pesticides are poisonous or toxic chemicals used on farms to kill insects.

Once pollutants are in streams they may change the chemistry of the stream making it difficult, or impossible, for plants and animals to survive. Pollution changes the amount of acid, the amount of certain nutrients, the amount of sediment, or the temperature.

by Alice Riener

### HEALTHY TEMPERATURES FOR STREAM LIFE

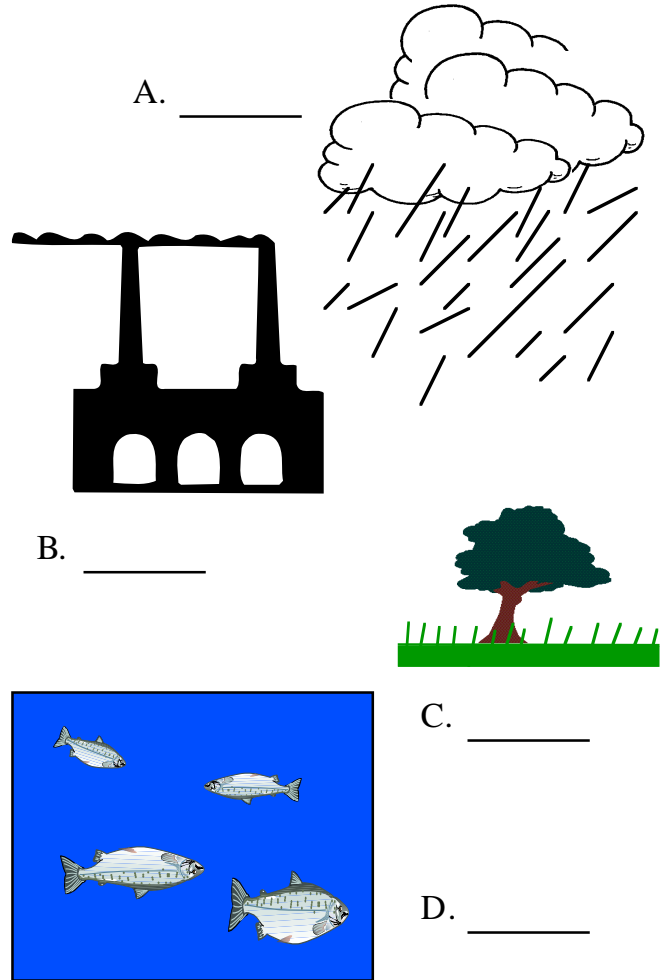


Answers To Acid Rain Game:

4 . D 3 . C 1 . B 2 . A

## ACID RAIN

Acid rain is caused by smoke and chemicals from factories, cars, and other sources. These poisons travel up into the atmosphere and mix with the water in the clouds. When it rains, this toxic combination comes back to earth in the form of acid rain. This poisonous rain kills plants and animals by changing the level of acid in the water.



## ACID RAIN GAME

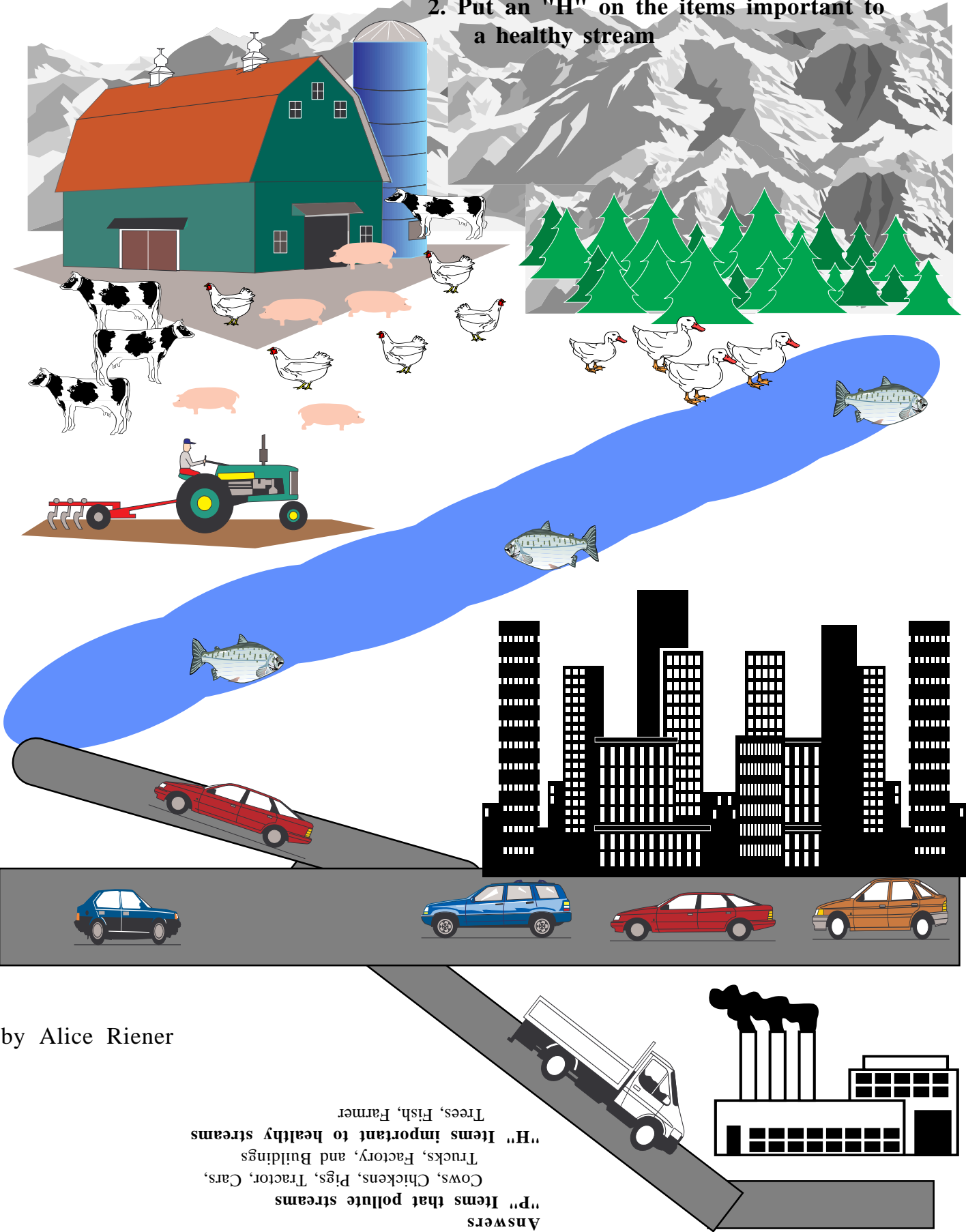
Directions: Max learned the path of acid rain and then got confused. Help Max trace the path of chemicals from their source to the end. Label the first one #1, the second one #2, and so on.

by Alice Riener

# STREAM SEARCH

**Directions:**

- 1. Put an "P" on the items that pollute
- 2. Put an "H" on the items important to a healthy stream



by Alice Riener

**Answers**  
"P" Items that pollute streams  
Trucks, Factory, and Buildings  
Cows, Chickens, Pigs, Tractor, Cars,  
"H" Items important to healthy streams  
Trees, Fish, Farmer